Exercise work

Exercise work covers 5 weekly programming exercises (= 5 points).

Exercise work can be done individually or as pair work. Pair consists of exactly two students. No bigger groups. If you do this pair work, it is enough that one student returns the work (but mention clearly that you work in pairs).

General instructions:

1. **Go through** all your returned weekly programming exercises (exercises 1 – 8).
    a. Go through every exercise and list every task from every exercise you have not finished.
    b. Especially if you aim at high grade (4 – 5), add as many additional features to your exercise work as you have unfinished tasks in your exercises 1 – 8, topics of those features shall cover the topics of the tasks.
2. **Estimate**, how many hours you have spent on this course
    a. doing the weekly exercises
    b. and keep track how many hours you spend on this exercise work.
3. **Think of** a topic for your exercise work. Topic cannot be exactly the same than already done in exercises or presented by teachers on class. Think of a "coherent" exercise work topic. Following areas shall be covered in the work:
    a. Multiple classes
    b. Multiple modules
    c. Multiple instances of a class
    d. At least one part of the work modeled using UML sequence diagram
    e. At least one part of the work modeled using flow chart
    f. At least one part of the work modeled using UML class diagram
    g. Some interaction/relationship between classes
    h. Inheritance
    i. Objects passed as function arguments
    j. Some data structure used (list, tuple, dictionary, …)
    k. Polymorphism

    Also, these shall be followed:
    a. Style guide is followed
    b. Git version control used
    c. Code well commented
    d. Documentation (see bullet 5)
    e. Testing (and evidence of testing visible and/or test report)
4. **Think of** your goal:
    a. Easy(ish) (Grade 1): **exercise work shall demonstrate student's ability to code classes in modules, create instances of class and pass instances as function arguments.** At least 50% of tasks of exercises 1-8 shall be done (or tasks replaced in the exercise work, document the replacements clearly). Work is at least somewhat documented.
    b. Medium (Grades 2-3): Like grade 1, and most of the requirements listed in bullet 3 are visible in the exercise work. About 75% of tasks of exercises 1-8 shall be done (or tasks replaced in the exercise work, document the replacements clearly). **Exercise work shall**

demonstrate that student can relatively confidently use the most important techniques of object-oriented programming. Work is rather well documented.

c. Challenging (Grades 4-5): Like grades 2-3, but close to 100% of tasks of exercises 1-8 shall be done (or tasks replaced in the exercise work, document the replacements clearly). **All topics listed in bullet 3 are covered.** Exercise work shall demonstrate that student masters all the topics covered in OOP course and exercise topic is not totally trivial. Work is very well documented and tested and all instructions are followed.

5. **Return** your work weekly in Itslearning. Modify the return template accordingly every week.
   a. **Part 1 – 21.3.2021:** at least preliminary topic, schedule of your project (what to do and when), goal (bullet 4), plan how to achieve the goal, possible missing tasks and topics listed (bullet 1) and *how many %* of Exercise tasks are done, time spent on weekly exercises (bullet 2a), time spent on this exercise work part 1 on this week (bullet 2b). Topic is described and some coding has been done (at least one class/module and a test program for it). Return the return document covering all the mentioned aspects (including the self-assessment) and take screen capture of code and running it.
   b. Part 2 – 28.3.2021: updated schedule (if changes), weekly hour tracking (bullet 2b), initial UML diagrams and flow chart, coding has been progressing steadily (at least 30-40 % of features are covered and tested). Return the return document covering all the mentioned aspects (including the self-assessment) and take screen capture of code and running it.
   c. Part 3 – 11.4.2021: updated schedule (if changes), weekly hour tracking (bullet 2b), modified UML diagrams and flow chart (if any modifications done), coding has been progressing steadily (at least 75 % of features are covered and tested). Return the return document covering all the mentioned aspects (including the self-assessment) and take screen capture of code and running it.
   d. Final – 18.4.2021: final deadline: updated schedule (if changes), weekly hour tracking (bullet 2b), final versions of all diagrams, finished program, code well commented, all replacing task codes are clearly marked in code. Self-assessment how did you do (what went well, what challenges and successes you had, what would you still like to learn, are you happy with the outcome). Return the return document covering all the mentioned aspects (including the self-assessment) and take screen capture of code and running it.

6. Demonstrate your work on class 26.4.2021
   a. You will be divided into groups of 4-6 people, prepare to demonstrate what your work does, how it works and show at least some parts of your code as well (= the parts that you consider the most important to you during this exercise work). No need to go through every file and every code line. Each presentation shall last about 5-10 minutes.